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(54) **METHOD AND DEVICE FOR BANDWIDTH ALLOCATION IN MULTIPLE ACCESS PROTOCOLS WITH CONTENTION-BASED RESERVATION**

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(57) **ABSTRACT**

The problem of allocating bandwidth on the upstream channel of an HFC cable network for contention-based transmission of requests that are used to reserve upstream bandwidth for transmission of user data is solved by a method of allocation which dynamically adapts to the prevailing offered load of reservation requests. In one embodiment this is done by determining an appropriate size for a contention interval in each upstream transmission frame by attempting to balance the rates of flow of user data into and out of a virtual global data queue using a fluid approximation method that is based on a solution to a balanced equation relating the demand and supply of slots for data transmission within each frame.

15 Claims, 16 Drawing Sheets

